

**ABSTRACT**

IPv6 has been developed as an evolutionary advance of IPv4. Although IPv6 offers considerable improvement in certain areas such as addressing and routing it has eliminated the Internet header length field. As a result processing of packets to obtain the upper-layer header information in which extension headers have been added can result in slower processing rates. The present invention addresses this issue by caching information relating to the length of header option fields also known as extension headers. When a flow of IPv6 packets is received and if the packet header includes extension headers a review of the cached information can avoid processing steps and hence accelerate packet processing.